

What is claimed is:

1. A gel mold comprising a curved front film, a curved 4-sided middle frame, and a curved rear film wherein said front film, said middle frame, and said rear film bend to the same direction with the same degree of curvature and share the same size;

5 wherein said front film and said rear film are spaced apart by said middle frame and bound to said middle frame at their periphery, forming a curved rectangular cassette having opposing top and bottom ends, two lateral sides, a front face, a back face, and a chamber in-between said films;

10 wherein said chamber is for receiving an electrophoresis gel and has a first opening in said front film approximate to the top end of said cassette and a second opening in said rear film approximate to the bottom end of said cassette, said first opening being formed by cutting an aperture in said front film, said second opening being constructed into at least one hole in said rear film, said electrophoresis gel in said chamber extending from said second opening to said first opening and having a first gel
15 exposure at said first opening and a second gel exposure at said second opening.

2. A gel mold of claim 1 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

3. A gel mold of claim 1 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

20 4. A gel mold of claim 1 wherein said middle frame is of U-shape with its open side at the top end of said cassette, said first opening of said chamber being created by a U-shape cut in said front film from said top end of said cassette.

5. A gel mold of claim 4 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

25 6. A gel mold of claim 4 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

30 7. A gel mold of claim 1 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

8. A gel mold of claim 7 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

5 9. A gel mold of claim 4 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

10 10. A gel mold of claim 9 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

11. A gel mold of claim 10 wherein said back frame has an additional curved strip connecting two lateral sides of the back frame, said curved strip locating at said top end of said cassette and binding to said rear film.

15 12. A gel medium prepared in the gel mold of claim 1 comprising a curved front film, a curved 4-sided middle frame, and a curved rear film wherein said front film, said middle frame, and said rear film bend to the same direction with the same degree of curvature and share the same size;

20 wherein said front film and said rear film are spaced apart by said middle frame and bound to said middle frame at their periphery, forming a curved rectangular cassette having opposing top and bottom ends, two lateral sides, a front face, a back face, and a chamber in-between said films;

25 wherein said chamber is for receiving an electrophoresis gel and has a first opening in said front film approximate to the top end of said cassette and a second opening in said rear film approximate to the bottom end of said cassette, said first opening being formed by cutting an aperture in said front film, said second opening being constructed into at least one hole in said rear film, said electrophoresis gel in said chamber extending from said second opening to said first opening and having a first gel exposure at said first opening and a second gel exposure at said second opening.

30 13. A gel medium of claim 12 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

14. A gel medium of claim 12 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

15. A gel medium of claim 12 wherein said middle frame is of U-shape with its open side at the top end of said cassette, said first opening of said chamber being created
5 by a U-shape cut in said front film from said top end of said cassette.

16. A gel medium of claim 15 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

17. A gel medium of claim 15 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

10 18. A gel medium of claim 12 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

15 19. A gel medium of claim 18 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

20 20. A gel medium of claim 15 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

21. A gel medium of claim 20 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

25 22. A gel medium of claim 21 wherein said rear frame has an additional curved strip connecting two lateral sides of the rear frame, said curved strip locating at said top end of said cassette and binding to said rear film.

30 23. A gel medium prepared in the gel mold of claim 1 comprising a curved front film, a curved 4-sided middle frame, and a curved rear film wherein said front film, said middle frame, and said rear film bend to the same direction with the same degree of curvature and share the same size;

Wherein said front film and said rear film are stably coated with a layer of hydrophilic materials that include silicon oxide, polyvinyl alcohols, aluminum oxide, and other hydrophilic polymers.

5 wherein said front film and said rear film are spaced apart by said middle frame and bound to said middle frame at their periphery, forming a curved rectangular cassette having opposing top and bottom ends, two lateral sides, a front face, a back face, and a chamber in-between said films;

10 wherein said chamber is for receiving an electrophoresis gel and has a first opening in said front film approximate to the top end of said cassette and a second opening in said rear film approximate to the bottom end of said cassette, said first opening being formed by cutting an aperture in said front film, said second opening being constructed into at least one hole in said rear film, said electrophoresis gel in said chamber extending from said second opening to said first opening and having a first gel exposure at said first opening and a second gel exposure at said second opening.

15 24. A gel medium of claim 23 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

25. A gel medium of claim 23 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

20 26. A gel medium of claim 23 wherein said middle frame is of U-shape with its open side at the top end of said cassette, said first opening of said chamber being created by a U-shape cut in said front film from said top end of said cassette.

27. A gel medium of claim 26 wherein said rear film is larger in size than said middle frame and extends outward from at least one side of said cassette.

25 28. A gel medium of claim 26 wherein said front film is larger in size than said middle frame and extends outward from at least one side of said cassette.

29. A gel medium of claim 23 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

30. A gel medium of claim 29 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

5 31. A gel medium of claim 26 wherein said cassette is structurally strengthened by a curved front frame and a curved rear frame, said front frame and rear frame taking the shape of said middle frame and binding to the periphery of said cassette at the front face and the back face of the cassette, respectively.

10 32. A gel medium of claim 31 wherein said front frame has an additional curved strip connecting two lateral sides of the front frame, said curved strip locating at said first opening of said cassette and binding to said front film.

33. A gel medium of claim 32 wherein said rear frame has an additional curved strip connecting two lateral sides of the rear frame, said curved strip locating at said top end of said cassette and binding to said rear film.